

**Physicist, GS-5, 7, 9, 11, 12, 13, 14, 15**

For all grades A or B is required:

A. A full 4-year course, in an accredited college or university, leading to a bachelor's degree. This study must have included courses in physics consisting of lectures, recitations, and appropriate practical laboratory work totaling 24 semester hours; or

B. Courses in physics, in an accredited college or university, consisting of lectures, recitations and appropriate practical laboratory work totaling 24 semester hours; plus additional appropriate experience or education which when combined with the 24 semester hours in physics will total 4 years of education and experience and give the applicant a technical and professional knowledge comparable to that which would have been acquired through the successful completion of the 4-year college course described in A.

In either A or B above, the courses must have included a fundamental course in general physics and, in addition, courses in any two of the following: electricity and magnetism, heat, light, mechanics, modern physics, sound.

All these courses must have been acceptable for credit toward the completion of a standard 4-year professional curriculum leading to a bachelor's degree at an accredited college or university, and must have been taught in the department of physics or be acceptable to that department as courses in physics toward meeting the institution's requirements for a major in physics.

In addition, applicants must have had professional experience in physics as follows:

Grade	Total (years)	Specialized (years)
GS-5.....	None	None
GS-7.....	$\frac{1}{2}$	None
GS-9.....	$1\frac{1}{2}$	1
GS-11.....	$2\frac{1}{2}$	2
GS-12.....	$3\frac{1}{2}$	2
GS-13, 14, 15.....	4	2

For GS-7, the professional experience must have involved the use of the principles of theoretical or applied physics in the solution of scientific problems.

For GS-9, the experience must have been progressive and must have included 1 year of research or scientific investigative work in a specialized branch of physics.

For GS-11, the experience must have been responsible and progressive and must have included 2 years of difficult and important research or scientific investigative work in a specialized branch of physics. The experience must have demonstrated initiative, resourcefulness, and ability to perform very difficult work under only general supervision.

For GS-12, the experience must have been broad, progressive, and responsible and must have included 2 years which demonstrated either ability to organize, direct, and coordinate research or other similar difficult work of an important character in a specialized branch of physics, or marked capacity for original research in a specialized branch of physics.

For GS-13, 14, and 15, the experience must have been broad, progressive, responsible, and must have included 2 years of very important and responsible work in a specialized branch of physics. The total experience must have shown the following:

For GS-13: A thorough and wide knowledge of the principles of physics and their application and either (a) ability of a high order in the organization, direction, and coordination of important research or other comparable activities in physics, or (b) productive research in physics demonstrating by inventions, new theory developed or extended, or published scientific documents that the applicant is a person of marked attainment in the scientific world.

For GS-14: A comprehensive knowledge of the principles of physics and their application, and either (a) ability of a very high order in the organization, direction, and coordination of research or other comparable activities in physics of major importance, or (b) productive research in physics demonstrating by invention, new theory developed or extended, or through published scientific documents that the applicant who has achieved widespread recognition in the scientific world.

For GS-15: A comprehensive knowledge of the principles of physics and their application

(Continued)

PHYSICS SERIES

GS-1310

Physicist, GS-5, 7, 9, 11, 12, 13, 14, 15—Continued

and either (a) ability of a very high order in planning, organizing, directing, and coordinating research or other comparable activities in physics of major importance and magnitude, and administrative leadership of outstanding character, or (b) productive research of a very high order in physics resulting in important contributions to the fundamental knowledge of the field in which engaged, and recognition as an outstanding authority in the scientific world.

For eligibility at GS-9 and above, 6 months of the experience in a specialized branch of physics must have been at a level of difficulty and responsibility comparable to work of the next lower grade in this series.

For those positions in any grade involving highly complicated or fundamental scientific research or similar difficult scientific duties, selection may be restricted to those eligibles who show the successful completion of a full college education in an accredited college or university including the courses in physics specified above.

Substitution: Graduate study in physics successfully completed in an accredited college or university may be substituted for the professional experience prescribed up to a maximum of 2½ years of experience.

Successfully completed study fully equivalent to the requirements for a master's degree may be substituted for the professional experience

required for GS-7. Such study when combined with (a) 1 year of professional experience, or (b) 6 months of professional experience at the GS-7 level, or (c) an additional year of graduate study, each in the appropriate field, will meet the experience requirements for GS-9.

To substitute graduate study for 2½ years of experience, applicants must have successfully completed all requirements for the Ph. D. degree including the thesis. This study may meet the experience requirements for GS-11. For GS-12 and above, this Ph. D study may be substituted for 2½ years of experience including 1 year of the specialized experience, but applicants must also show 1 year of specialized experience, including the 6 months of experience required at a level comparable to that of the next lower grade.

One year of college-level teaching of professional grade in physics, when not accompanied by research, may be substituted for 6 months only of general experience. When such teaching is accompanied by a reasonable amount of scientific research or consulting work in an appropriate specialization of physics, it may be substituted year for year for any amount of the required experience of any grade, provided it is shown that all other requirements for the grade under consideration have been met.

Age for GS-5: 18-35.

See part 2, *Physical Requirements*, paragraph 4.

**Physical Science Administrator, GS-11, 12, 13, 14, 15**

A, B, or C is required:

A. Successful completion of a 4-year course leading to a bachelor's degree at an accredited college or university. This study must have included a full college major (as defined by the college attended) in a field of physical science or in mathematics or have led to a bachelor's degree in engineering.

B. Four years of successful, progressive, scientific, or technical experience in a field of physical science, mathematics, or engineering. The character, difficulty, and variety of the tasks performed must have demonstrated a working knowledge of the theory and application of the scientific principles of one of these fields. This experience must show an understanding of the field comparable in scope to that which would have been acquired through successful completion of the college course as described above.

C. Any time-equivalent combination of "A and B above. However, for each year of education accepted, it must be shown that the educational courses contained at least one fourth of the semester hour requirements for the full major in the field. The education and experience to be combined must be in the same general field of science or engineering.

In addition, applicants must have 3 years of broad, responsible, and progressive professional experience in physical science. (Mathematics and engineering are considered physical sciences.) This experience must show a thorough and wide knowledge of the principles of a physical science and their application. This experience must have included 1 year for GS-11, and 2 years for the higher grades, of experience in an administrative capacity involving:

(a) the planning, advising on, directing, and coordinating of the work of other scientists or engineers when such advice, direction, and coordination require a broad knowledge of the theory, scientific principles, terminology, and techniques of the physical sciences involved; the preparation or review of technical reports or papers on research, engineering, or technological projects in physical science; and the respon-

sibility for the formulation, recommendations, or execution of operating policies; or

(b) the negotiation or administration of contracts relating to scientific research and requiring a thorough knowledge of the theory, scientific principles, terminology, and techniques of the physical sciences involved. This administrative experience must have been progressive in difficulty, responsibility, and importance to a degree consistent with the duties of the grade of the position for which eligibility is being assigned and must have included 1 year of experience which was on a level of difficulty and responsibility comparable to that of the next lower grade in this series.

The total experience must show the possession of the following abilities and attainments:

For GS-11: Technical and administrative competence in the successful solution of problems connected with the administration of research, or work of similar scope and difficulty, in the physical sciences.

For GS-12: A high degree of technical and administrative competence in the original successful solution of complex and difficult technical and administrative problems connected with research, or work of similar scope and difficulty, in the physical sciences.

For GS-13: Demonstrated ability of a high order in the organization, direction, and coordination of important research, or other activities of similar scope and difficulty, in the physical sciences.

For GS-14: Demonstrated ability of a very high order in the organization, direction, and coordination of research of major importance, or other activities of similar scope and difficulty, in the physical sciences.

For GS-15: Outstanding ability in planning, organizing, directing, and coordinating research of major importance and magnitude, or other activities of similar scope and difficulty, in the physical sciences.

Substitution: Graduate study, which is fully equivalent to the requirements of a master's degree in a physical science, mathematics, or engineering, successfully completed at an accredited college or university, may be substituted for 1 year of general experience. A

UNITED STATES CIVIL SERVICE COMMISSION

GS-1301

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PHYSICAL SCIENCE ADMINISTRATION SERIES

Ph. D. degree in physical science, mathematics, or engineering at an accredited college or university may be substituted for 2 years of the general experience for the GS-11 grade. Graduate study may not be substituted for any part

of the prescribed administrative experience for any grade.

*See part 2, Physical Requirements, paragraph 3.* In addition, applicants must possess emotional and mental stability.